CITIZEN
SRP-265
Scientific Calculator

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BASIC DEFINITIONS

The Keys

To keep your calculators as compact as possible, some keys have more than one function. You can change the function of a key by pressing another key first, or by setting the calculator in a certain mode.

The following pages give you more detailed explanation of each key's use and function.

[2ndF] Second Function Select Key

Some keys have a second function inscribed above them. To perform this second function, press [2ndF]. " 2F " appears in the display then press the key.

GENERAL KEYS

[0] ~[9] [•] Data Entry keys

Press these keys in their logical sequence to enter numbers.

[+] [–] [x] [÷] [=] Basic Calculation Keys

Press these keys in their logical sequence for addition, subtraction, multiplication, division, and to display answers.

[ON/C] Power On / Clear Key

Press [ON/C] to turn on the calculator and to clear everything except the contents of the memory, constant memory(Ka, Kb), and program memory.

[CE] Clear Entry Key

Press [CE] to erase incorrect entries.

[00→0] Right Shift Key

Press to clear the last significant digit of the number displayed.

(Ex.)	123456	123456.
	[00→0]	12345.
	[00→0]	1234.

[+/–] Sign Change Key

Press [+/–] to change the displayed number from positive to negative or from negative to positive.

MEMORY KEYS

[MR] Memory Recall Key

Press [MR] to display the contents of the memory.

[X→M] Memory Store Key

Press [X→M] to store the displayed value into memory. Any previous value in memory is automatically erased.

[M+] Memory Plus Key

Press [M+] to total the current calculation and add the result to the value already in memory.

[2ndF] [$Ka^{x \to k}$], [2ndF] [$Kb^{x \to k}$] Constant (Ka, Kb) Memory Store Key

Press to enter the displayed value into constant memory Ka or Kb.

[$Ka^{x \to k}$], [$Kb^{x \to k}$] Memory Recall Key

Press to display the contents of a constant memory.

Note :

- Constant memories Ka and Kb can have a value of 0
- If you press [$Ka^{x \to k}$] or [$Kb^{x \to k}$] after entering a number or marking a calculation, the displayed value is multiplied by the value in Ka or Kb.

SPECIAL KEYS

[( ], [ )] Parenthesis Keys

Press to override the calculation's default order of operation by using parentheses. You can use up to 6 levels of parenthes in a single calculation.

[EXP] Exponent Key

To enter a number in scientific notation, first enter the numbers for the mantissa, press [EXP], and then enter the numbers for the exponent.

[2ndF] [π] Key

Press [2ndF] [π] to display the value of π, which is the ratio of circle's circumference to its diameter (approximately 3.141592654).

[2ndF] [X↔Y] Register Exchange Key

Press [2ndF] [X↔Y] to exchange the displayed value (X–register) with the contents of the working register (Y–register).

(Ex.)	123 [+] 456 [=]	579.
	[2ndF] [X↔Y]	456.
	[2ndF] [X↔Y]	579.

[2ndF] [FIX] Decimal Point Set Key

Use to set the number of digits displayed after the decimal point in either final or intermediate results. The calculator continues to use its full range for internal calculations and only rounds the number in the display.

- [2ndF] [FIX] [0]~[6] — Sets the number of digits to be displayed to the right of decimal point.
- [2ndF] [FIX] [7], [8], [9], [•] — Selects floating point format.

(Ex.)	5 [÷] 9 [=]	0.555555556
	[2ndF] [FIX] [2]	0.56
	[2ndF] [FIX] [5]	0.55556

[2ndF] [FIX] [・] 0. 555555556

Note : [2ndF] [FIX] is inactive immediately after and during numerical input.

[SCI] Scientific Key

Converts the displayed number into a power of ten and back.

(Ex.) : 12.3456 [x] 10 [=]	123.456	
[SCI]	1.23456	02
[SCI]	123.456	
[SCI]	1.23456	02

[DRG] Angle unit conversion key

Press to change the angle unit as DEG (Degrees), RAD (Radian), or GRAD (Gradient).

UNIT CONVERSION KEY

This calculator has 13 unit conversion keys as follows. Each key has two conversion features. For example, pressing [A→B] before [In↔cm] can convert a number in inches to centimeters ; Pressing [2ndF] [A←B] before [In↔cm] can convert a number in centimeters to inches.

Key	Meanings
[in↔cm]	inch↔centimeter
[feet↔m]	feet↔meter
[feet ^{2} ↔ m ^{2}]	feet ^{2} ↔meter ^{2}
[B.gal↔l]	Britain. gallon↔liter
[gal↔l]	gallon↔litre
[Pint↔l]	Pint↔litre
[Tr.oz↔g]	Troy ounce↔gram
[oz↔g]	ounce↔gram
[lb↔kg]	libra↔kilogram
[atm↔kpa]	atmospheric pressure↔kilopascal
[cal↔KJ]	calorie↔Kilo–Joule
[℉↔℃]	Fahrenheit ↔ Celsius
[mmHg↔Kpa]	mmHg↔kilopascal

FUNCTION KEYS

[2ndF] [°,",→], [2ndF] [→°,"] Sexagesimal Notation / Decimal Notation Conversion Keys

To change from sexagesimal (base 60) notation (degree, minute, second) to decimal notation (degree) press [2ndF] [°,",→]. To change from decimal notation to sexagesimal notation, enter the number in decimal form and then press [2ndF] [→°,"].

[sin], [cos], [tan] Sine, Cosine, Tangent Keys

Calculate the trigonometric functions of the displayed value.

[2ndF] [sin $^{-1}$], [2ndF] [cos^{-1}], [2ndF] [tan^{-1}] Inverse Sine, Inverse Cosine, Inverse Tangent Keys

Calculate the inverse trigonometric functions of the displayed value.

[2ndF] [HYP] [sin], [2ndF] [HYP] [cos], [2ndF] [HYP] [tan] Hyperbolic Keys

Calculate the hyperbolic functions of the displayed value.

[2ndF] [HYP] [2ndF] [sin^{-1}], [2ndF] [HYP] [2ndF] [cos^{-1}], [2ndF] [HYP] [2ndF] [tan^{-1}] Inverse Hyperbolic Keys

Calculate inverse hyperbolic functions of the displayed value.

[Log], [2ndF] [10 ^{x}] Common Logarithm And Common Antilogarithm Keys

Calculate the common logarithm of the displayed value. To calculate the common antilogarithm of the displayed value, press [2ndF] [10 ^{x}].

[ln], [2ndF] [e^{x}] Natural Logarithm And Natural Antilogarithm Keys

To calculate the neutral logarithm of the displayed value, press [ln]. To calculate the natural antilogarithm of the displayed value, press [2ndF] [e ^{x}].

[$\sqrt{}$], [x ^{2}] Square Root And Square Keys

Press [$\sqrt{}$] to find the square root of the displayed value. To square the displayed value, press [x ^{2}].

[2ndF] [$\sqrt[3]{}$] Cubic Root Key

Press [2ndF] [$\sqrt[3]{}$] to find the cubic root of the displayed value.

[2ndF] [1/x] Reciprocal Key

Press [2ndF] [1/x] to calculate the reciprocal of the displayed value.

[2ndF] [n!] Factorial Key

To find the factorial of the displayed value, press [2ndF] [n!]

[x ^{y}] Power Key

Press any number [x],[x ^{y}], any number [y], and [=] raise x to the y power.

[2ndF] [$\sqrt[y]{x}$] Root Key

Press any number [x] [2ndF] [$\sqrt[y]{x}$], any number [y], and [=] to display the yth root of x.

[a b/c], [2ndF] [$\rightarrow$ d/e] Fraction key

Pressing by [a b/c] can enter a fraction or convert a fraction to a decimal number. Pressing by [2ndF] [$\rightarrow$ d/e] can convert a mixed number to an improper fraction and vice versa.

[CONST] Physics Constant Key

This calculator enables you to perform calculations with 15 built–in

physics constants. Just pressing [CONST] key continuously can show the following symbols and values.

Symbol	Meaning	Value
c	Speed of light	299792458 m / s
g	Acceleration of gravity	9.80665 m s^{-2}
G	Gravitational constant	6.6725985 x 10^{-11} N m^{2} kg^{-2}
Vm	Molar volume of ideal gas	0.0224141 m^{3} mol^{-1}
N_A	Avagadro's number	6.0221367 x 10^{23} mol^{-1}
R	Molar gas constant	8.3145107 J / K mol
e	Elementary charge	1.6021773 x 10^{-19} C
m_e	Electron mass	9.1093898 x 10^{-31} kg
m_p	Proton mass	1.6726231 x 10^{-27} kg
m_n	Neutron mass	1.6749286 x 10^{-27} kg
u	Unified atomic mass	1.6605402 x 10^{-27} kg
h	Plank constant	6.6260755 x 10^{-34}J.S
k	Boltzmann constant	1.3806581 x 10^{-23} $J.K^{-1}$
μ_0	Magnetic permittivity	0.000001257 Hm^{-1}
ε_0	Dielectric permittivity	8.854187817 x 10^{-12} Fm^{-1}

PROGRAMMING KEYS (USE IN THE PGM MODE ONLY)

[2ndF] [PGM]—Program Mode Set and Clear Key

Set the calculator to the learn program mode. PGM appears on the display and the previous contents of program memory are cleared.

When you finish entering the program, press [2ndF] [PGM]. The program you just entered is stored in the program memory. PGM disappears and the calculator exits the program mode.

[RUN]—Compute Key

Runs the recorded program.

[2ndF] [[x]]—Specify Variable Key

Lets you have the calculator wait for an entry during a program.

[2ndF] [HALT]—Temporarily Halt Calculation Key

Temporarily halts a program so you can view the intermediate results or interrupt calculation.

STATISTICAL KEYS (USE IN THE STAT MODE ONLY)

[2ndF] [STAT] Statistical Mode Select Key

Sets the calculator to statistical calculation mode. STAT appears in the display.

[2ndF] [CAD] Statistical Register Clear Key

Clears the statistical calculation registers.

[DATA], [DEL] Data Entry and Delete Key

In the STAT mode, enter data by pressing the desired numbers, then [DATA]. If you enter incorrect data and do not notice your mistake until you press [DATA], enter the same incorrect data and then press [DEL] to delete that incorrect data.

[$\bar{x}$] Arithmetic Mean Key

Calculates the arithmetic mean ($\bar{x}$) of the data.

[2ndF] [σ] Population Standard Deviation Key

Calculates the population standard deviation of the data.

[s] Sample Standard Deviation Key

Calculates the sample standard deviation of the data.

[2ndF] [Σx^2] Sum of Square Value Key

Calculates the sum of the square value (Σx^2) of the data.

[2ndF] [Σx] Sum of Value Key

Calculates the sum of the value (Σx) of the data.

[n] Number of Data Key

Displays the number of data (n) entries.

The Display

Indicators showed on the display to indicate you the current status of the calculator.

- Floating point displays up to 10 digits.
- The mantissa section displays up to 8 digits. the exponent section displays up to ±99.

STAT	:	Indicates the statistical mode.
M	:	Indicates that a value is stored in memory.
–	:	Appears to the left of the mantissa or exponent to indicate that the respective value is negative.
E	:	Indicates an error.
PGM	:	Indicates the program learn mode.
CONST	:	Indicates the constant mode.
GRAD	:	Indicates the gradient units have been selected.
RAD	:	Indicates that radian units have been selected.
DEG	:	indicates that degree units have been selected.
BUSY	:	While an operation is executing.
σ	:	Indicates the deviation value

2F	:	Appears when the second function has been selected.
HYP	:	Appears when the hyperbolic function has been selected.
(	:	Appears when you press [( ]. It shows the present level of nesting.

ORDER OF OPERATIONS

Each calculation is performed in the following order of precedence:

1) Functions required inputting values before pressing the function key, for example, cos, sin, tan, $\cos^{-1}$, $\sin^{-1}$, $\tan^{-1}$, log, ln, x^2, 1/x, $\sqrt{\ }$, π, $\sqrt[3]{\ }$, X!, %, →°′″, °′″→ and 13 units conversion.
2) Operation in parenthesis
3) Functions required pressing the function key before entering, for example, [EXP] key .
4) Fractions
5) +/–
6) $\sqrt[y]{x}$, x^y
7) x , ÷
8) +, –

ACCURACY AND CAPACITY

Functions	Input range
Sin x, cos x, tan x	Deg : $\lvert x \rvert < 1 \times 10^{11}$ deg Rad : $\lvert x \rvert < 1745329252$ rad Grad : $\lvert x \rvert < 1.111111111 \times 10^{11}$ grad however, for tan x Deg : $\lvert x \rvert \neq 90\ (2n+1)$ Rad : $\lvert x \rvert \neq \frac{\pi}{2}\ (2n+1)$ Grad : $\lvert x \rvert \neq 100\ (2n+1)$ (n is an integer)
$\sin^{-1} x$, $\cos^{-1} x$	$\lvert x \rvert \leq 1$
$\tan^{-1} x$	$\lvert x \rvert < 1 \times 10^{100}$
sinh x, cosh x	$\lvert x \rvert \leq 230.2585092$
tanh x	$\lvert x \rvert < 1 \times 10^{100}$
$\sinh^{-1} x$	$\lvert x \rvert < 5 \times 10^{99}$
$\cosh^{-1} x$	$1 \leq X < 5 \times 10^{99}$
$\tanh^{-1} x$	$\lvert x \rvert < 1$
log x, ln x	$1 \times 10^{-99} \leq X < 1 \times 10^{100}$

10^{x}	$\lvert x \rvert < 100$
e^{x}	$\lvert x \rvert \leq 230.2585092$
$\sqrt{x}$	$0 \leq X < 1 \times 10^{100}$
x^{2}	$\lvert x \rvert < 1 \times 10^{50}$
1/x	$1 \times 10^{-99} \leq \lvert x \rvert < 1 \times 10^{100}$, $X \neq 0$
$\sqrt[3]{x}$	$\lvert x \rvert < 1 \times 10^{100}$
n !	$0 \leq n \leq 69$, n is an integer.
→o,,, , o,,,→	$\lvert x \rvert < 1 \times 10^{100}$
x^{y}	$x > 0 : -1 \times 10^{100} < y \log x < 100$ $x = 0 : y > 0$ $x < 0$: y=n, 1/(2n+1), n is an integer. but $-1 \times 10^{100} < y \log \lvert x \rvert < 100$
$\sqrt[y]{x}$	$x > 0 : y \neq 0, -1 \times 10^{100} < \frac{1}{y} \log x < 100$ $x = 0 : y > 0$ $x<0$: y=2n+1, l/n, n is an integer.($n \neq 0$) but $-1 \times 10^{100} < \frac{1}{y} \log \lvert x \rvert$ 100
a b/c	Input：Total of integer, numerator and denominator must be within 10 digits (includes division marks) Result：Result displayed as fraction for integer when integer, numerator and denominator are less than 1×10^{10}
STAT	$\lvert x \rvert < 1 \times 10^{50}$, $\lvert \Sigma x \rvert < 1 \times 10^{100}$ $0 \leq \Sigma x^{2} < 1 \times 10^{100}$, $0 \leq n < 1 \times 10^{100}$ $\bar{x} : n \neq 0$; s : $n > 1$; σ : $n > 0$

OVERFLOW / ERROR CONDITIONS

A symbol " E " is indicated on the display when any of the following conditions occur and further calculation becomes impossible. Just press [ON/C] to release those overflow or error indicator and the subsequent calculation can then be performed.

- An intermediate or final calculation result exceed 1×10^{100} (including memory calculations).
- You try to divide by zero.
- The number of low priority storage levels exceeds 6 in a parentheses calculation or nesting parentheses exceed 7 in one level. (Even if the number of levels is within 6, an error might occur if you are using memories Ka or Kb, or program memories.)
- You try to use [2ndF] [Ka $^{x \to k}$] or [2ndF] [Kb $^{x \to k}$] while memories

Ka and Kb are being used for low–priority calculation storage.

- You make a calculation that is out of the range for functional and statistical calculations.
- You try to store over 40 steps in a program.

To clear calculation after an overflow condition, press [ON/C].

POWER SUPPLY

To turn the calculator on, press [ON/C] ; To turn the calculator off, press [OFF]. This calculator automatically turns it off when not operated for approximately 9 minutes. It can be reactivated by pressing [ON/C] key and the display, memory, settings are retained.

The calculator uses two alkaline button batteries GP76A(LR44) for power. If the display becomes dim and difficult to read, the batteries should be replaced as soon as possible.

To replace batteries :

Remove the screws that hold the back cover.

1) Remove the back cover.
2) Replace the old batteries and install new ones with polarity in correct directions.
3) Secure the screws in place then press [ON/C] to turn the power on.

NORMAL CALCULATIONS

Basic Calculation (Including Parenthesis Calculations)

(Ex.) : – 3.5 +8 ÷ 2= 0.5		
3.5 [+/–] [+] 8 [÷] 2 [=]	DEG	0.5
(Ex.) : (5 – 2 x 1.5) x 3 + 0.8 x (– 4) = ?		
[( ] 5 [–] 2 [x] 1.5 [ )] [x] 3 [+] 0.8 [x] 4 [+/ –] [=]	DEG	2.8
(Ex.) : 2 x [7 + 6 x (5 + 4)] = 122		
2 [x] [( ] 7 [+] 6 [x] [( ] 5 [+] 4 [=]	DEG	122.

(Note) : It is unnecessary to press the [ )] key before the [=] key.

Constant Calculations

(Ex.) : 3 $\underline{+ 2.3}$ = 5.3 6 $\underline{+ 2.3}$ = 8.3		
3 [+] 2.3 [=]	DEG	5.3
6 [=]	DEG	8.3
(Ex.) : 7 $\underline{– 5.6}$ = 1.4 –4.5 $\underline{– 5.6}$ = –10.1		
7 [–] 5.6 [=]	DEG	1.4

4.5 [+/–] [=]	DEG –10.1
(Ex.) : 12 x 2.3 = 27.6 12 x (–9) = –108	
12 [x] 2.3 [=]	DEG 27.6
9 [+/–] [=]	DEG –108
(Ex.) : 74 ÷ 2.5 = 29.6 85.2 ÷ 2.5 = 34.08	
74 [÷] 2.5 [=]	DEG 29.6
85.2 [=]	DEG 34.08

Memory Calculations

- Do not set the function mode to " STAT " when performing memory calculation.
- A new number entered into memory by pressing [X→M] repalces any number previosly stored.
- To clear the memory's contents, press [0] [X→M] or [ON/C] [X→M] in sequence.
- M appears when a number which is not equal to " 0 " is stored in memory.
- When you press [X→M] after pressing [MR], the displayed number is changed as the contents of the memory.

(Ex.) : (3 – 5) + (56 ÷ 7) + (74 – 8 x 7) = 19		
0 [X→M]	DEG	0.
3 [–] 5 [M+]	M DEG	–2.
56 [÷] 7 [M+]	M DEG	8.
74 [–] 8 [x] 7 [M+]	M DEG	18.
[MR]	M DEG	24.
0 [X→M]	DEG	0.

FUNCTION CALCULATIONS

Sexagesimal ↔ Decimal conversion

(Ex.) : 12° 45' 30" = 12.75833333	
12 [° '] 4530 [2ndF] [°'"→]	DEG 12.75833333
(Ex.) : 2.12345 = 2° 7' 24.42"	
2.12345 [2ndF] [→°'"]	DEG 2.072442

Before performing the following calculation, check to see that your calculator is fixed at 2 decimal disaply format.

Fraction Calculation

- By pressing [2ndF] [$\rightarrow \frac{d}{e}$], the displayed value will be converted to the improper fraction.

(Ex.) : $\frac{2}{3}+7\frac{3}{5}=\frac{124}{15}$	
2 [a b/c] 3 [+] 7 [a b/c] 3 [a b/c] 5 [=]	DEG 8 ⌟4 ⌟15
[2ndF] [$\rightarrow \frac{d}{e}$]	DEG 124 ⌟15

- When a press of [a b/c] key after the [=] key or a fraction performed with a decimal, the answer is displayed as a decimal.

(Ex.) : $5\frac{4}{9}+3\frac{3}{4}=9\frac{7}{16}=9.19$	
5 [a b/c] 4 [a b/c] 9 [+] 3 [a b/c] 3 [a b/c] 4 [=]	DEG 9 ⌟7 ⌟36
[a b/c]	DEG 9.19

Trigonometric / Inverse – Tri. Functions

(Ex.) : 3 sin 30 ° = 1.50	
3 [x] 30 [sin] [=]	DEG 1.50
(Ex.) : cos ($\frac{2\pi}{3}$ rad) = – 0.5	
2 [x] [2ndF] [π] [÷] 3 [=] [cos]	RAD – 0.50
(Ex.) : $\sin^{-1}$ 0.5 = 30 (deg)	
0.5 [2ndF] [$\sin^{-1}$]	DEG 30.00
(Ex.) : $\cos^{-1}(\frac{1}{\sqrt{2}})$ = 0.79 (rad)	
2 [$\sqrt{}$] [2ndF] [1/x] [2ndF] [$\cos^{-1}$]	RAD 0.79

Hyperbolic Functions and Inverse – Hyp. Functions

(Ex.) : cosh 1.5 + sinh 1.5 = 4.48	
1.5 [2ndF] [HYP] [cos] [+] 1.5 [2ndF] [HYP] [sin] [=]	DEG 4.48
(Ex.) : $\sinh^{-1}$ 7 = 2.64	
7 [2ndF] [HYP] [2ndF] [$\sin^{-1}$]	DEG 2.64

Common And Natural Logarithms / Exponentiations

(Ex.) : ln7 + log100 = 3.95

7 [ln] [+] 100 [log] [=]	DEG 3.95
(Ex.) : $10^{2} = 100.00$	
2 [2ndF] [10^{x}] [=]	DEG 100.00
(Ex.) : $e^{5} - e^{-2} = ?$	
5 [2ndF] [e^{x}] [–] 2 [+/–] [2ndF] [e^{x}] [=]	DEG 148.28

Power, Root, Reciprocals, Factorials

(Ex.) : $\sqrt{2} + \sqrt{3} \times \sqrt{5} = 5.29$	
2 [$\sqrt{}$] [+] 3 [$\sqrt{}$] [x] 5 [$\sqrt{}$] [=]	DEG 5.29
(Ex.) : $\sqrt[3]{5} + \sqrt[3]{-27} = -1.29$	
5 [2ndF] [$\sqrt[3]{}$] [+] 27 [+/–] [2ndF] [$\sqrt[3]{}$] [=]	DEG –1.29
(Ex.) : $7^{5} = 16807$	
7 [x^{y}] 5 [=]	DEG 16807.00
(Ex.) : $\sqrt[5]{32} = 2$	
32 [2ndF] [$\sqrt[y]{x}$] 5 [=]	DEG 2.00
(Ex.) : $\dfrac{1}{\frac{1}{3} - \frac{1}{4}} = 12.00$	
3 [2ndF] [1/x] [–] 4 [2ndF] [1/x] [=] [2ndF] [1/x]	DEG 12.00
(Ex.) : $123 + 30^{2} = 1023.00$	
123 [+] 30 [x^{2}] [=]	DEG 1023.00
(Ex.) : 8 ! = 1 x 2 x 3 x ……x 7 x 8 = 40320.00	
8 [2ndF] [n !]	DEG 40320.00

Unit Conversion

(Ex.) : 12 in = 30.48 cm	
12 [A→B] [2ndF] [in ↔cm]	DEG 30.48
(Ex.) : 98 cm = 38.58 in	
98 [2ndF] [A←B] [2ndF] [in↔cm]	DEG 38.58

Note : All operating procedures for unit conversion key,
[feet ↔ m], [feet ^{2}↔ m ^{2}], [B.gal ↔ l], [gal ↔ l]
[Pint↔ l], [Tr.oz ↔ g], [oz ↔ g], [lb ↔ kg],
[atm ↔ kpa], [cal ↔ kJ], [℉ ↔ ℃] and
[mmHg ↔ kpa] are the same as the above example.

Physics Constants

(Ex.) : 5 x G = 3.34 x 10 $^{-10}$	
5 [x] [CONST] [CONST] [CONST]	CONST DEG 6.67 –11 G
[=]	DEG 3.34 –10

STANDARD DEVIATIONS

- Press [2ndF] [STAT] to set the calculator to the statistical calculation mode.
- Press [2ndF] [CAD] to clear statistical memory before you start a new calculation.
- Instead of entering directly each data, when often several item of data have the same value, you can enter the value and the number of occurrences.

(Ex.) : Enter the following data to calculate n, Σx, Σx^2, $\bar{x}$, s σ, where data 1 = 2, data 2~4 = 5, data 5~6 = 9	
[2ndF] [STAT]	STAT DEG 0.
[2ndF] [CAD]	STAT DEG 0.
2 [DATA] 5 [DATA] 5 [DATA] 5 [DATA] 9 [DATA] 9 [DATA] – or – 2 [DATA] 5 [x] 3 [DATA] 9 [x] 2 [DATA]	STAT DEG 6.
[n]	STAT DEG 6.
[2ndF] [Σx^2]	STAT DEG 241.
[2ndF] [Σx]	STAT DEG 35.
[$\bar{x}$]	STAT DEG 5.833333333
[s]	STAT DEG 2.714160398
[2ndF] [σ]	STAT DEG σ 2.477678125

Note:

The sample standard deviation S is defined as : $\sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$

The population standard deviation σ is defined as : $\sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n}}$

The arithmetical mean x is defined as : $\frac{\sum x}{n}$

- To delete an incorrect entry, press [DEL].

PROGRAMMING

With your programmable scientific calculator, complex repeated calculations are no longer time–consuming chores. All you have to do is tell the calculator what you want to do in a way it can understand (in other word, program it).

Your calculator can store one procedure with up to 40 steps. These "steps" can be either steps (like mathematical functions) or characters (like numbers). Each function counts as one steps. It remembers the procedure even after you turn off the calculator. You can have more than one variable in your calculation.

Your calculator learns mathermatical procedures or programs in the program (PGM) mode. To set the calculator to the program mode, press [2ndF] [PGM]. PGM appears on the display.

Now enter your procedure as if you were just going to calcualte it once —except—press [2ndF] [[x]] before entering variable data. You get your first answer while you are still in the PGM mode.

Note : If you press [2ndF] [[x]] then [•] or a number, and then [EXP], [+/–], [ )] or [CE], both the number and the first function following the number are treated as one variable—they are not written into the program as steps.

Remember, you can enter a maximum of 40 steps. If you try to enter a 41st step, the calculator dispalys E. Press [ON/C] to clear the error.

To stop storing a program, press [2ndF] [PGM] again. PGM disappears and the calculator leaves the program mode. Press [RUN] to begin repeating the same mathematical procedure with different variables.

When you press [RUN], you can begin entering different variables. Just enter each variable in the order in which it occurs in the formula and press [RUN] after each variable. The answers appears on the display.

Stored programs are automatically erased when you press [2ndF] [PGM]. So, unless you want to enter a new program, do not select the program mode.

You can program your calculator to give you interim values in your formula also. While programming the calculation (in PGM mode),

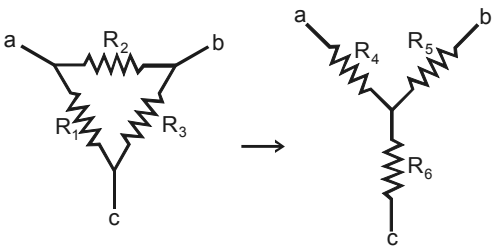
press [=] when you reach the point where you want the interim value displayed. Then press [2ndF] [HALT] and continue entering your formula in the usual way.

When you run the program, press [RUN] after the calculator dispalys an interim value to resume the program. You can use the same method to program your calculator to run two or more formulas. One after another.

(Ex.) Find the total amount of principal and interest on a $5,000 loan (x) at 6% annual interest (y) compounded annually over a period of 7 years (z) ? Formula : total amount = $x(1+y)^z$	
(Ex.) : (1) x = $5,000 y = 6 % z = 7 years (2) x = $1,000 y = 10 % z = 5 years	
[2ndF] [PGM]	PGM DEG 0.
[2ndF] [[x]]	PGM DEG [1]
5000	PGM DEG 5000.
[x] [( ] 1 [+] [2ndF] [[x]]	PGM DEG [2]
6	PGM DEG 6.
[÷] 100 [ )] [x^y] [2ndF] [[x]]	PGM DEG [3]
7	PGM DEG 7.
[=]	PGM DEG 7518.151295
[2ndF] [PGM]	DEG 0.
[RUN]	DEG [1]
1000	DEG 1000.
[RUN]	DEG [2]
10	DEG 5.
[RUN]	DEG [3]
5	DEG 5.

[RUN]	DEG 1610.51

Description :



$\triangle \rightarrow Y$

$$R_4 = \frac{R_1 \bullet R_2}{R_1 + R_2 + R_3}$$

$$R_5 = \frac{R_2 \bullet R_3}{R_1 + R_2 + R_3}$$

$$R_6 = \frac{R_3 \bullet R_1}{R_1 + R_2 + R_3}$$

(Ex) :(1) R_1 = 12 (Ω)
R_2 = 47 (Ω)
R_3 = 82 (Ω)

(2) R_1 = 10 (Ω)
R_2 = 20 (Ω)
R_3 = 30 (Ω)

12 [2ndF] [Ka $^{x\rightarrow k}$]	DEG 12.	
47 [2ndF] [Kb $^{x\rightarrow k}$]	DEG 47.	
82 [X → M]	M DEG 82.	
[2ndF] [PGM]	M PGM DEG 0.	
[Ka $^{x\rightarrow k}$] [Kb $^{x\rightarrow k}$]	M PGM DEG 564.	R_1 x R_2
[÷] [( ] [Ka $^{x\rightarrow k}$] [+] [Kb $^{x\rightarrow k}$] [+] [MR] [ )] [=]	M PGM DEG 4.	R_4
[2ndF] [HALT]	M PGM DEG 4.	
[MR] [Kb $^{x\rightarrow k}$]	M PGM DEG 3854.	R_2 x R_3
[=]	M PGM DEG 27.33333333	R_5
[2ndF] [HALT]	M PGM DEG 27.33333333	
[MR] [Ka $^{x\rightarrow k}$]	M PGM DEG 984.	R_3 x R_1
[=]	M PGM DEG 6.978723404	R_6
[2ndF] [PGM]	M DEG 0.	
10 [2ndF] [Ka $^{x\rightarrow k}$] 20 [2ndF] [Kb $^{x\rightarrow k}$] 30 [X→M]	M DEG 30.	
[ON/C] [RUN]	M DEG 3.333333333	R_4

[RUN]	M DEG 10.	R_5
[RUN]	M DEG 5.	R_6